SEASONALITY AND REPRODUCTIVE BEHAVIOUR OF *CICADETTA TRISTRIGATA* (GODING AND FROGGATT) (HEMIPTERA: CICADIDAE) AT ARMIDALE, N.S.W.

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Abstract

At Armidale, New South Wales, adults of *Cicadetta tristrigata* were present from late November to mid-January in 1992/93. Males call from early morning until shortly after sunset. Females fly to and land near singing males. Mating pairs were evident from mid-morning until late afternoon. Females construct from 3-6 egg slits, each containing 8-14 eggs, on the branches of *Eucalyptus viminalis* saplings.

Introduction

There are few published accounts of the reproductive behaviour of Australian Cicadidae. Moulds (1990) provides a summary of the available information. Observations on the reproductive behaviour of *Cicadetta tristrigata* are detailed here. The name, *C. tristrigata*, has been loosely applied to a complex of species that occur along the east coast of continental Australia (Moulds 1990). In the vicinity of Armidale, in north-eastern New South Wales, *C. tristrigata* is represented by a moderately sized cicada (body length 21-25 mm, forewing length 29-33 mm). The head and thorax are typically dark brown to black, and the abdomen is narrowly black above with distinct orange-red lateral and ventral surfaces. The species commonly inhabits eucalypt woodland to the north and east of Armidale. Voucher specimens (2 males and 2 females) have been lodged with the Australian Museum (Sydney, NSW).

Methods

Observations on the reproductive behaviour of *C. tristrigata* were conducted in an area of eucalypt woodland adjacent to the campus of the University of New England, Armidale, N.S.W. during the period November 1992 to February 1993. Observations on seasonal occurrence, male calling, copulatory activity, and female oviposition behaviour were made.

Results

Seasonal occurrence

The seasonal occurrence of *C. tristrigata* during 1992/93, as indicated by the activity of singing males, extended from late November to mid-January, with adults being most numerous during late December. Exuviae of *C. tristrigata* were noted on the lower trunks of eucalypt saplings throughout the period mid-November to late December 1992; however, no recently emerged exuviae were apparent during January 1993.

Male calling behaviour and copulation

Males were observed to perch on the trunks and lower limbs of eucalypt trees at heights ranging from 1 to 5 m. Males were also noted to call from power poles, fence posts, and the sides of buildings. Males remained largely stationary and called continuously for periods of up to 25-30 min. The call consists of a soft buzzing interspersed with ticking. Males called from approximately 0800 h E.S.T. to half an hour after sunset (1900 h E.S.T.).

Females were observed to fly to, and land near, singing males. Despite observations of numerous males, with females in attendance, the initiation of copulation was not observed. Copulating pairs were, however, observed on several occasions. In all cases, pairs positioned themselves along side each other, with their heads pointing in the same direction. The duration of copulation was not recorded. Copulating pairs were apparent from mid-morning through to late afternoon.

Oviposition behaviour

Females were observed ovipositing on the bark of *Eucalyptus viminalis* (Labill.) (ribbon gum) saplings. Individual females constructed from 3 - 6 egg slits on the upper side of horizontal or near horizontal branches, the slits being arranged in a row at approximately right angles to the long axis of the branch. Eggs slits contained from 8 - 14 eggs each (average 10, n = 21). Eggs were deposited in the woody tissue approximately 2 - 3 mm below the outer surface of the bark and were arranged in pairs with successive pairs overlapping one another. Eggs were narrow, elongate and approximately 1.0 - 1.5 mm in length. Ovipositing females were observed from mid-morning through to late afternoon. Over the 11 weeks of the study, numerous females were observed to oviposit on a single *E. viminalis* branch, with some 300 egg slits eventually being made on a 1m length of branch. Examination of other branches on which females were ovipositing showed similar arrangements, indicating that several *C. tristrigata* females oviposit at the same site.

Discussion

Moulds (1990) gives the seasonal occurrence of *C. tristrigata* as extending from mid-September to early March. The more restricted occurrence of *C. tristrigata* recorded here (November - January) may reflect the shorter favourable season experienced in the Armidale region (*ca.* 1000 m altitude), and appears to be typical for other species in the area (M. Coombs unpubl. observ.).

The reproductive behaviour of *C. tristrigata* is characteristic of most Cicadidae (Myers 1929, Moulds 1990), where males sing to attract females. Oviposition records for this species are presented for the first time. The number and arrangement of eggs in each egg slit are typical for similar sized species (Moulds 1990). However, patterns of egg slit groupings are less frequently documented. Myers (1929) provides descriptions of New Zealand species arranging egg slits in a zig-zag fashion along stems, while females of *Cicadetta labeculata* arrange egg slits in a herringbone fashion lengthwise along stems (M. Coombs unpubl. observ.). Such patterns of oviposition scars are possibly species specific and deserve documentation.

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References

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